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| 09/461,068 | 12/14/1999 | TINKU ACHARYA | 042390.P7490 | 3297 |

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EXAMINER

VU, NGOC YEN T

| ART UNIT | PAPER NUMBER |
|----------|--------------|
|----------|--------------|

2612

DATE MAILED: 09/24/2003

8

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.
09/461,068

Applicant(s)
TINKU ACHARYA

Examiner
Ngoc-Yen Vu

Art Unit
2612



-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136 (a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on Dec 14, 1999.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11; 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-21 is/are pending in the application.
- 4a) Of the above, claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 20 and 21 is/are allowed.
- 6) ☒ Claim(s) 1-7 and 11-16 is/are rejected.
- 7) ☒ Claim(s) 8-10 and 17-19 is/are objected to.
- 8) ☐ Claims _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on Dec 14, 1999 is/are a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgement is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
*See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. § 119(e).
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s). 4-7 6) ☐ Other:

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Information Disclosure Statement

1. The information disclosure statement, paper No. 5, filed 02/04/03 (pages 3-5) fails to comply with 37 CFR 1.98(a)(2), which requires a legible copy of each U.S. and foreign patent; each publication or that portion which caused it to be listed; and all other information or that portion which caused it to be listed. It has been placed in the application file, but the information referred to therein has not been considered.

Specification

2. The disclosure is objected to because of the following informalities: U.S. patent application serial No. on page 1 is missing. Appropriate correction is required.
3. The specification is objected to as failing to provide proper antecedent basis for the claimed subject matter. See 37 CFR 1.75(d)(1) and MPEP § 608.01(o). Correction of the following is required: LL subband (as claimed in claims 8-9 and 17-18) and zero subbands (as claimed in claims 10, 19 and 20).

Drawings

4. Figure 1 should be designated by a legend such as --Prior Art-- because only that which is old is illustrated. See MPEP § 608.02(g). A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

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Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless -

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

5. Claims 1, 2, 4-6, 11, 12, 14 and 15 are rejected under 35 U.S.C. 102(b) as being anticipated by Kanamori et al. (US #5,428,465).

Regarding claim 1, Kanamori '465 teaches a method of converting from a sub-sampled color image in a first color space format (Fig. 1, RGB) to a full color image in a second color space format (Y, Cr, Cb) comprising:

transforming the sub-sampled color image in the first color space format to the second color space format (generating section 102; col. 6 lines 41+; col. 9 lines 32+; col. 12 line 10 - col. 13 line 51); and

upsampling at least one color plane of the transformed image, the one color plane corresponding to one of the color space dimensions of the second color space format, to provide the full color image in the second color space format (interpolation section 101 and color control section 105; col. 7 line 3 - col. 9 line 26; col. 9 line 50 - col. 11 line 6).

As to claim 2, Kanamori teaches that the first color space format is the RGB color space format (see Fig. 1).

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As to claim 4, Kanamori teaches that the first and second color space formats comprise two different luminance-chrominance color space formats (RGB and YCrCb).

As to claim 5, Kanamori teaches that transforming comprises applying a relationship to at least one pixel value of the image in the first color space format to obtain a pixel value in the second color space format (col. 6 lines 41+; col. 9 lines 32+; col. 12 line 10 - col. 13 line 51).

As to claim 6, Kanamori teaches that transforming comprises applying the relationship to more than at least one pixel value of the image in the first color space format (col. 6 lines 41+; col. 9 lines 32+; col. 12 line 10 - col. 13 line 51).

Regarding claims 11-12 and 14-15, the subject matter these claims can be found in claims 1-2 and 4-6 respectively. It is inherent that the method and apparatus for color conversion taught in Kanamori can be done via hardware or software having instructions which can be executed by a system.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claims 3 and 13 are rejected under 35 U.S.C. 103(a) as being unpatentable over

Kanamori '465 in view of Prabhakar et al. (US #5,832,120).

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As to claim 3, Kanamori teaches that the second color space format is the Y:Cr:Cb color space format (Fig. 1). Kanamori does not specifically teach that the second color space format is the Y:Cr:Cb 4:2:0 format. However, it is well known in the art that there are three primary color space formats: Y:Cr:Cb 4:2:0, Y:Cr:Cb 4:2:2 and Y:Cr:Cb 4:4:4 as taught in Prabhakar '120 (see Fig. 1, col. 3 line 54 - col. 4 line 31). In light of the teaching from Prabhakar, it would have been obvious to one of ordinary skill in the art to modify the color conversion method disclosed in Kanamori by providing Y:Cr:Cb 4:2:0 as the second color space format so as to display the color image on most commonly VGA display devices.

As to claim 13, the subject matter claim 13 can be found in claim 3. It is inherent that the method and apparatus for color conversion taught in Kanamori and Prabhakar can be done via hardware or software having instructions which can be executed by a system.

7. Claims 7 and 16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kanamori '465 in view of Zador (US #6,125,201).

As to claim 7, Kanamori teaches RGB and Y:Cr:Cb color space formats. Claim 7 differs from Kanamori in that the claim further requires the relationship is substantially in accordance with the following equations:

$$Y(I,J) = 0.299R(I,J) + 0.587G(I,J) + 0.114B(I,J)$$

$$Cr(I,J) = -0.169R(I,J) - 0.331G(I,J) + 0.500B(I,J)$$

$$Cb(I,J) = 0.500R(I,J) - 0.419G(I,J) - 0.081B(I,J)$$

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However, it is well known in the art to accomplish color conversion according to the claimed equation as shown in Zador '201 (see col. 8 lines 18-31). In light of the teaching from Zador, it would have been obvious to one of ordinary skill in the art to modify the color conversion method disclosed in Kanamori by transforming the RGB color space to the Y:Cr:Cb color space according to the relationship as claimed since they are well-known techniques for accomplishing color conversion.

As to claim 16, the subject matter claim 16 can be found in claim 7. It is inherent that the method and apparatus for color conversion taught in Kanamori and Zador can be done via hardware or software having instructions which can be executed by a system.

Allowable Subject Matter

8. Claims 20-21 are allowed.
9. Claims 8-10 and 17-19 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Conclusion

10. **Any response to this office action should be mailed to:**

Commissioner of Patents and Trademarks

Washington, D.C. 20231

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or faxed to:

(703) 872-9314, (for formal communications intended for entry)

(for informal or draft communications, please label

"PROPOSED" or "DRAFT")

Hand-delivered responses should be brought to Crystal Park II, 2121 Crystal Drive, Arlington.

VA., Sixth Floor (Receptionist).

11. Any inquiry concerning this communication or earlier communications from the examiner should be directed to **Ngoc-Yen Vu** whose telephone number is (703) 305-4946. The examiner can normally be reached on Mon - Fri from 8 am to 4:30 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, **Wendy Garber**, can be reached on (703) 305-4929.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 305-4700.

NY
09/08/2003


NGOC-YEN VU
PRIMARY EXAMINER